

07100



OIEP

RAW SEQUENCE LISTING

DATE: 02/22/2002

PATENT APPLICATION: US/10/066,551

TIME: 13:06:42

Input Set : A:\875-045US1 Sequence Listing.txt

Output Set: N:\CRF3\02222002\J066551.raw

ENTERED

```

4 <110> APPLICANT: Apicella, M. A.
5     Edwards, J. L.
6     Gibson, B. W.
7     Scheffler, K.
8     Brown, E.
10 <120> TITLE OF INVENTION: Vaccine and compositions for the
11     prevention and treatment of Neisserial infections
13 <130> FILE REFERENCE: 875.045US1
C--> 15 <140> CURRENT APPLICATION NUMBER: US/10/066,551
C--> 15 <141> CURRENT FILING DATE: 2002-01-31
15 <150> PRIOR APPLICATION NUMBER: US 60/344,452
16 <151> PRIOR FILING DATE: 2001-10-23
18 <150> PRIOR APPLICATION NUMBER: US 60/310,356
19 <151> PRIOR FILING DATE: 2001-08-06
21 <150> PRIOR APPLICATION NUMBER: US 60/266,070
22 <151> PRIOR FILING DATE: 2001-01-31
24 <160> NUMBER OF SEQ ID NOS: 12
27 <210> SEQ ID NO: 1
28 <211> LENGTH: 2015
29 <212> TYPE: PRT
30 <213> ORGANISM: Neisseria gonorrhoeae
32 <400> SEQUENCE: 1
33 Met Asn Lys Gly Leu His Arg Ile Ile Phe Ser Lys Lys His Ser Thr
34 1 5 10 15
35 Met Val Ala Val Ala Glu Thr Ala Asn Ser Gln Gly Lys Gly Lys Gln
36 20 25 30
37 Ala Gly Ser Ser Val Ser Val Ser Leu Lys Thr Ser Gly Asp Leu Cys
38 35 40 45
39 Gly Lys Leu Lys Thr Thr Leu Lys Thr Leu Val Cys Ser Leu Val Ser
40 50 55 60
41 Leu Ser Met Val Leu Pro Ala His Ala Gln Ile Thr Thr Asp Lys Ser
42 65 70 75 80
43 Ala Pro Lys Asn Gln Gln Val Val Ile Leu Lys Thr Asn Thr Gly Ala
44 85 90 95
45 Pro Leu Val Asn Ile Gln Thr Pro Asn Gly Arg Gly Leu Ser His Asn
46 100 105 110
47 Arg Tyr Thr Gln Phe Asp Val Asp Asn Lys Gly Ala Val Leu Asn Asn
48 115 120 125
49 Asp Arg Asn Asn Asn Pro Phe Leu Val Lys Gly Ser Ala Gln Leu Ile
50 130 135 140
51 Leu Asn Glu Val Arg Gly Thr Ala Ser Lys Leu Asn Gly Ile Val Thr
52 145 150 155 160
53 Val Gly Gly Gln Lys Ala Asp Val Ile Ile Ala Asn Pro Asn Gly Ile

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54          165          170          175
55 Thr Val Asn Gly Gly Phe Lys Asn Val Gly Arg Gly Ile Leu Thr
56          180          185          190
57 Ile Gly Ala Pro Gln Ile Gly Lys Asp Gly Ala Leu Thr Gly Phe Asp
58          195          200          205
59 Val Arg Gln Gly Thr Leu Thr Val Gly Ala Ala Gly Trp Asn Asp Lys
60          210          215          220
61 Gly Gly Ala Asp Tyr Thr Gly Val Leu Ala Arg Ala Val Ala Leu Gln
62 225          230          235          240
63 Gly Lys Leu Gln Gly Lys Asn Leu Ala Val Ser Thr Gly Pro Gln Lys
64          245          250          255
65 Val Asp Tyr Ala Ser Gly Glu Ile Ser Ala Gly Thr Ala Ala Gly Thr
66          260          265          270
67 Lys Pro Thr Ile Ala Leu Asp Thr Ala Ala Leu Gly Gly Met Tyr Ala
68          275          280          285
69 Asp Ser Ile Thr Leu Ile Ala Asn Glu Lys Gly Val Gly Val Lys Asn
70          290          295          300
71 Ala Gly Thr Leu Glu Ala Ala Lys Gln Leu Ile Val Thr Ser Ser Gly
72 305          310          315          320
73 Arg Ile Glu Asn Ser Gly Arg Ile Ala Thr Thr Ala Asp Gly Thr Glu
74          325          330          335
75 Ala Ser Pro Thr Tyr Leu Ser Ile Glu Thr Thr Glu Lys Gly Ala Ala
76          340          345          350
77 Gly Thr Phe Ile Ser Asn Gly Gly Arg Ile Glu Ser Lys Gly Leu Leu
78          355          360          365
79 Val Ile Glu Thr Gly Glu Asp Ile Ser Leu Arg Asn Gly Ala Val Val
80          370          375          380
81 Gln Asn Asn Gly Ser Arg Pro Ala Thr Thr Val Leu Asn Ala Gly His
82 385          390          395          400
83 Asn Leu Val Ile Glu Ser Lys Thr Asn Val Asn Asn Ala Lys Gly Ser
84          405          410          415
85 Ala Asn Leu Ser Ala Gly Gly Arg Thr Thr Ile Asn Asp Ala Thr Ile
86          420          425          430
87 Gln Ala Gly Ser Ser Val Tyr Ser Ser Thr Lys Gly Asp Thr Glu Leu
88          435          440          445
89 Gly Glu Asn Thr Arg Ile Ile Ala Glu Asn Val Thr Val Leu Ser Asn
90          450          455          460
91 Gly Ser Ile Gly Ser Ala Ala Val Ile Glu Ala Lys Asp Thr Ala His
92 465          470          475          480
93 Ile Glu Ser Gly Lys Pro Leu Ser Leu Glu Thr Ser Thr Val Ala Ser
94          485          490          495
95 Asn Ile Arg Leu Asn Asn Gly Asn Ile Lys Gly Gly Lys Gln Leu Ala
96          500          505          510
97 Leu Leu Ala Asp Asp Asn Ile Thr Ala Lys Thr Thr Asn Leu Asn Thr
98          515          520          525
99 Pro Gly Asn Leu Tyr Val His Thr Gly Lys Asp Leu Asn Leu Asn Val
100          530          535          540
101 Asp Lys Asp Leu Ser Ala Ala Ser Ile His Leu Lys Ser Asp Asn Ala
102 545          550          555          560

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103 Ala His Ile Thr Gly Thr Ser Lys Thr Leu Thr Ala Ser Lys Asp Met
104      565      570      575
105 Gly Val Glu Ala Gly Leu Leu Asn Val Thr Asn Thr Asn Leu Arg Thr
106      580      585      590
107 Asn Ser Gly Asn Leu His Ile Gln Ala Ala Lys Gly Asn Ile Gln Leu
108      595      600      605
109 Arg Asn Thr Lys Leu Asn Ala Ala Lys Ala Leu Glu Thr Thr Ala Leu
110      610      615      620
111 Gln Gly Asn Ile Val Ser Asp Gly Leu His Ala Val Ser Ala Asp Gly
112 625      630      635      640
113 His Val Ser Leu Leu Ala Asn Gly Asn Ala Asp Phe Thr Gly His Asn
114      645      650      655
115 Thr Leu Thr Ala Lys Ala Asp Val Asn Ala Gly Ser Val Gly Lys Gly
116      660      665      670
117 Arg Leu Lys Ala Asp Asn Thr Asn Ile Thr Ser Ser Ser Gly Asp Ile
118      675      680      685
119 Thr Leu Val Ala Gly Asn Gly Ile Gln Leu Gly Asp Gly Lys Gln Arg
120      690      695      700
121 Asn Ser Ile Asn Gly Lys His Ile Ser Ile Lys Asn Asn Gly Gly Asn
122 705      710      715      720
123 Ala Asp Leu Lys Asn Leu Asn Val His Ala Lys Ser Gly Ala Leu Asn
124      725      730      735
125 Ile His Ser Asp Arg Ala Leu Ser Ile Glu Asn Thr Lys Leu Glu Ser
126      740      745      750
127 Thr His Asn Thr His Leu Asn Ala Gln His Glu Arg Val Thr Leu Asn
128      755      760      765
129 Gln Val Asp Ala Tyr Ala His Arg His Leu Ser Ile Thr Gly Ser Gln
130      770      775      780
131 Ile Trp Gln Asn Asp Lys Leu Pro Ser Ala Asn Lys Leu Val Ala Asn
132 785      790      795      800
133 Gly Val Leu Ala Leu Asn Ala Arg Tyr Ser Gln Ile Ala Asp Asn Thr
134      805      810      815
135 Thr Leu Arg Ala Gly Ala Ile Asn Leu Thr Ala Gly Thr Ala Leu Val
136      820      825      830
137 Lys Arg Gly Asn Ile Asn Trp Ser Thr Val Ser Thr Lys Thr Leu Glu
138      835      840      845
139 Asp Asn Ala Glu Leu Lys Pro Leu Ala Gly Arg Leu Asn Ile Glu Ala
140      850      855      860
141 Gly Ser Gly Thr Leu Thr Ile Glu Pro Ala Asn Arg Ile Ser Ala His
142 865      870      875      880
143 Thr Asp Leu Ser Ile Lys Thr Gly Gly Lys Leu Leu Leu Ser Ala Lys
144      885      890      895
145 Gly Gly Asn Ala Gly Ala Pro Ser Ala Gln Val Ser Ser Leu Glu Ala
146      900      905      910
147 Lys Gly Asn Ile Arg Leu Val Thr Gly Glu Thr Asp Leu Arg Gly Ser
148      915      920      925
149 Lys Ile Thr Ala Gly Lys Asn Leu Val Val Ala Thr Thr Lys Gly Lys
150      930      935      940
151 Leu Asn Ile Glu Ala Val Asn Asn Ser Phe Ser Asn Tyr Phe Pro Thr

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152 945          950          955          960
153 Gln Lys Ala Ala Glu Leu Asn Gln Lys Ser Lys Glu Leu Glu Gln Gln
154          965          970          975
155 Ile Ala Gln Leu Lys Lys Ser Ser Pro Lys Ser Lys Leu Ile Pro Thr
156          980          985          990
157 Leu Gln Glu Glu Arg Asp Arg Leu Ala Phe Tyr Ile Gln Ala Ile Asn
158          995          1000          1005
159 Lys Glu Val Lys Gly Lys Lys Pro Lys Gly Lys Glu Tyr Leu Gln Ala
160          1010          1015          1020
161 Lys Leu Ser Ala Gln Asn Ile Asp Leu Ile Ser Ala Gln Gly Ile Glu
162 1025          1030          1035          1040
163 Ile Ser Gly Ser Asp Ile Thr Ala Ser Lys Lys Leu Asn Leu His Ala
164          1045          1050          1055
165 Ala Gly Val Leu Pro Lys Ala Ala Asp Ser Glu Ala Ala Ala Ile Leu
166          1060          1065          1070
167 Ile Asp Gly Ile Thr Asp Gln Tyr Glu Ile Gly Lys Pro Thr Tyr Lys
168          1075          1080          1085
169 Ser His Tyr Asp Lys Ala Ala Leu Asn Lys Pro Ser Arg Leu Thr Gly
170          1090          1095          1100
171 Arg Thr Gly Val Ser Ile His Ala Ala Ala Leu Asp Asp Ala Arg
172 1105          1110          1115          1120
173 Ile Ile Ile Gly Ala Ser Glu Ile Lys Ala Pro Ser Gly Ser Ile Asp
174          1125          1130          1135
175 Ile Lys Ala His Ser Asp Ile Val Leu Glu Ala Gly Gln Asn Asp Ala
176          1140          1145          1150
177 Tyr Thr Phe Leu Lys Thr Lys Gly Lys Ser Gly Lys Ile Ile Arg Lys
178          1155          1160          1165
179 Thr Lys Phe Thr Ser Thr Arg Asp His Leu Ile Met Pro Ala Pro Val
180          1170          1175          1180
181 Glu Leu Thr Ala Asn Gly Ile Thr Leu Gln Ala Gly Gly Asn Ile Glu
182 1185          1190          1195          1200
183 Ala Asn Thr Thr Arg Phe Asn Ala Pro Ala Gly Lys Val Thr Leu Val
184          1205          1210          1215
185 Ala Gly Glu Glu Leu Gln Leu Leu Ala Glu Glu Gly Ile His Lys His
186          1220          1225          1230
187 Glu Leu Asp Val Gln Lys Ser Arg Arg Phe Ile Gly Ile Lys Val Gly
188          1235          1240          1245
189 Lys Ser Asn Tyr Ser Lys Asn Glu Leu Asn Glu Thr Lys Leu Pro Val
190          1250          1255          1260
191 Arg Val Val Ala Gln Thr Ala Ala Thr Arg Ser Gly Trp Asp Thr Val
192 1265          1270          1275          1280
193 Leu Glu Gly Thr Glu Phe Lys Thr Thr Leu Ala Gly Ala Asp Ile Gln
194          1285          1290          1295
195 Ala Gly Val Gly Glu Lys Ala Arg Val Asp Ala Lys Ile Ile Leu Lys
196          1300          1305          1310
197 Gly Ile Val Asn Arg Ile Gln Ser Glu Glu Lys Leu Glu Thr Asn Ser
198          1315          1320          1325
199 Thr Val Trp Gln Lys Gln Ala Gly Arg Gly Ser Thr Ile Glu Thr Leu
200          1330          1335          1340

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```

201 Lys Leu Pro Ser Phe Glu Ser Pro Thr Pro Pro Lys Leu Ser Ala Pro
202 1345          1350          1355          1360
203 Gly Gly Tyr Ile Val Asp Ile Pro Lys Gly Asn Leu Lys Thr Glu Ile
204          1365          1370          1375
205 Glu Lys Leu Ser Lys Gln Pro Glu Tyr Ala Tyr Leu Lys Gln Leu Gln
206          1380          1385          1390
207 Val Ala Lys Asn Ile Asn Trp Asn Gln Val Gln Leu Ala Tyr Asp Arg
208          1395          1400          1405
209 Trp Asp Tyr Lys Gln Glu Gly Leu Thr Glu Ala Gly Ala Ala Ile Ile
210          1410          1415          1420
211 Ala Leu Ala Val Thr Val Val Thr Ser Gly Ala Gly Thr Gly Ala Val
212 1425          1430          1435          1440
213 Leu Gly Leu Asn Gly Ala Ala Ala Ala Thr Asp Ala Ala Phe Ala
214          1445          1450          1455
215 Ser Leu Ala Ser Gln Ala Ser Val Ser Phe Ile Asn Asn Lys Gly Asp
216          1460          1465          1470
217 Val Gly Lys Thr Leu Lys Glu Leu Gly Arg Ser Ser Thr Val Lys Asn
218          1475          1480          1485
219 Leu Val Val Ala Ala Ala Thr Ala Gly Val Ala Asp Lys Ile Gly Ala
220          1490          1495          1500
221 Ser Ala Leu Asn Asn Val Ser Asp Lys Gln Trp Ile Asn Asn Leu Thr
222 1505          1510          1515          1520
223 Val Asn Leu Ala Asn Ala Gly Ser Ala Ala Leu Ile Asn Thr Ala Ile
224          1525          1530          1535
225 Asn Gly Gly Ser Leu Lys Asp Asn Leu Gly Asp Ala Ala Leu Gly Ala
226          1540          1545          1550
227 Ile Val Ser Thr Val His Gly Glu Val Ala Ser Lys Ile Lys Phe Asn
228          1555          1560          1565
229 Leu Ser Glu Asp Tyr Ile Thr His Lys Ile Ala His Ala Ile Ala Gly
230          1570          1575          1580
231 Cys Ala Ala Ala Ala Ala Asn Lys Gly Lys Cys Gln Asp Gly Ala Ile
232 1585          1590          1595          1600
233 Gly Ala Ala Val Gly Glu Ile Val Gly Glu Ala Leu Thr Asn Gly Lys
234          1605          1610          1615
235 Asn Pro Ala Thr Leu Thr Ala Lys Glu Arg Glu Gln Ile Leu Ala Tyr
236          1620          1625          1630
237 Ser Lys Leu Val Ala Gly Thr Val Ser Gly Val Val Gly Gly Asp Val
238          1635          1640          1645
239 Asn Thr Ala Ala Asn Ala Ala Lys Val Ala Ile Glu Asn Asn Leu Leu
240          1650          1655          1660
241 Ser Gln Glu Glu Tyr Ala Leu Arg Glu Lys Leu Ile Lys Lys Ala Lys
242 1665          1670          1675          1680
243 Gly Lys Gly Leu Leu Ser Leu Asp Trp Gly Ser Leu Thr Glu Gln Glu
244          1685          1690          1695
245 Ala Arg Gln Phe Ile Tyr Leu Ile Glu Lys Asp Arg Tyr Ser Asn Gln
246          1700          1705          1710
247 Leu Leu Asp Arg Tyr Gln Lys Asn Pro Ser Ser Leu Asn Asn Gln Glu
248          1715          1720          1725
249 Lys Asn Ile Leu Ala Tyr Phe Ile Asn Gln Thr Ser Gly Gly Asn Thr

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VERIFICATION SUMMARY

PATENT APPLICATION: US/10/066,551

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TIME: 13:06:43

Input Set : A:\875-045US1 Sequence Listing.txt

Output Set: N:\CRF3\02222002\J066551.raw

L:15 M:270 C: Current Application Number differs, Replaced Current Application No

L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date